REMARKS

[0001] Applicants would like to thank Examiners Black and Ali for the telephone interview held on March 14, 2007. In that interview, the parties discussed the primary prior art reference (Call, US 20020143521) which served as the foundation of the 35 U.S.C. §102(b) rejection of the Independent Claims 1, 13, and 18. Applicants submitted a list of suggested amendments for consideration. Amended Independent Claim 1 incorporated substantially all of the limitations of Dependent Claim 2.

[0002] Examiner Ali indicated that further incorporating the limitations of Dependent Claim 4 into Amended Independent Claim 1 would most likely make Claim 1 allowable. Examiner Ali further identified possible issues with the claims under 35 U.S.C. §101 and suggested the use of the terms "storage medium", "processor", and/or "memory" to help avoid problems under section 101. The Examiners also noted the presence of an incorrect dependency and a typo in the proposed amendments. In response to the interview, Applicants have made further amendments to the Independent Claims and Dependent Claims.

[0003] Claims 1-20 are pending in this application. Claims 1-3 and 8-11 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Call (US 20020143521) (hereinafter "Call"). Claims 4-7 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Call in view of Pic et al. (US 6988093) (hereinafter "Pic"). Claim 12 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Call, Pic, and further in view of Fogarasi et al. (US 6128619) (hereinafter "Fogarasi"). Claims 13-20 claim are rejected based on the same grounds of rejection as for Claims 1-12.

[0004] Applicants have replaced paragraph 37 of the published version of the specification (paragraph 35 of the specification as filed). Applicants have also amended Independent Claim 1 to incorporate substantially all of the limitations of Dependent Claims 2, 4, and 12. Claims 2, 4, and 12 have been canceled. Claims 3, 5, and 7 have been amended to reflect the changes in dependency with the new claim set. Independent Claim 13 has been amended to incorporate the limitations of Claims 14 and 4. Claim 14 has been canceled. Claim 15 has been amended to reflect changes in dependency due to

the new claim set. Independent Claim 18 has been amended to reflect the limitations of Claims 19 and 4. Claim 19 has been canceled.

AMENDMENTS TO CLAIMS

[0005] Amended Independent Claim 1 clarifies that the hierarchical database is an information management system (IMS) hierarchical database. This amendment substantially incorporates the limitation of canceled Dependent Claim 12. Amended Claim 1 also incorporates the limitations of canceled Dependent Claims 2 and 4, reciting the methods for handling the storage of individual XML elements and intact XML documents respectively. The amendments to Claim 1 are supported by and taught in the submitted application in originally submitted Claims 2, 4, and 12. The amendments to Dependent Claims 3, 5, and 7 reflect the changes in dependencies caused by the above cancellations and amendments.

[0006] Amended Independent Claim 13 clarifies hardware components of the apparatus including a processor and a memory. Paragraphs 34 and amended 35 of the specification teach this embodiment. In addition, the amendment substantially incorporates the limitation of canceled Dependent Claim 14. Amended Claim 13 further incorporates the limitations of canceled Claim 4.

[0007] Applicants note that the substance of the amended Claim is taught in canceled Claim 4 as originally filed and further in connection with Figure 8 and its accompanying explanation in paragraphs 96-103 of the specification. Those of ordinary skill in the art recognize that the limitations taught in canceled Claim 4 and in the referenced portions of the specification can be implemented as software modules, which may comprise the initialization module and the breakout module of amended Claim 13. As such, canceled Claim 4 and paragraphs 96-103 teach the limitations introduced in the amendments to Claim 13.

[0008] Finally, the amendment to Dependent Claim 15 reflects a change in dependency due to the cancellation of Claim 14. The changes made to Independent Claim 18 are substantially the same as those made to amended Independent Claim 13,

and support for the amendments is found in the same portions of the specification and previous claims referenced in connection with Claim 13.

RESPONSE TO CLAIM REJECTIONS UNDER 35 U.S.C. §102(b)

[0009] Independent Claims 1, 13, and 18 were rejected under 35 U.S.C. §102(b) as being anticipated by Call. Applicants assert that the amendments to Claims 1, 13, and 18 overcome the prior art and that the Claims, and their dependents, are thus in position for allowance.

[0010] Under 35 U.S.C. §102, "an invention is anticipated if . . . all the claim limitations [are] shown in a single art prior art reference. Every element of the claimed invention **must be literally present**, arranged as in the claim. The identical invention must be shown in as complete detail as is contained in the patent claim." *Richardson v. Suzuki Motor Co., Ltd.*, 9 USPQ 2d 1913, 1920 (Fed. Cir. 1989) (emphasis added); *see also, Apple Computer, Inc. v. Articulate Systems, Inc.*, 234 F.3d 14, 20, 57 USPQ2d 1057, 1061 (Fed. Cir. 2000). Appellants assert that every element of the amended Independent Claims is not present in Call. Amended Claim 1 recites, in relevant part:

> . . .
> passing data between an XML document and the IMS hierarchical database using the **metadata schema**, further comprising:
> receiving the XML document comprising XML elements organized according to the metadata schema;
> matching an XML element of the XML document with a metadata element defined in the metadata schema; and
> storing content data from the XML element in a database field of the hierarchical database identified by the matching metadata element; and
> passing an intact XML document to the IMS hierarchical database and storing it intact, further comprising:
> receiving the XML document and a database node identifier;
> **initializing a first database node of the hierarchical database identified by the database node identifier**;
> sequentially **writing raw data** from the beginning of the XML document into the first database node; and
> **selectively identifying a break point** in the XML document, in response to the first database node filling with raw data, the method further comprising,

initializing a second database node that is a child of the first database node; and
sequentially writing raw data from the break point of the XML document into the second database node.

[0011] Applicants submit that Call fails to teach:

"the metadata schema,"

"writing raw data from the beginning of the XML document into the first database node,"

"initializing a second database node that is a child of the first database node," and

"sequentially writing raw data from the break point of the XML document into the second database node."

[0012] Call teaches use of an XML schema as part of converting data of XML documents to the fixed length integer form for storage in the integer array. Call ¶ 73. However, Call is silent on the subject of where this schema originates from. In particular, Call makes no correlation or association of the schema with a hierarchical database. Instead, Call simply notes that the metadata in the XML schema is used to manipulate items and fields. Applicants submit that Call fails to teach or disclose a metadata schema **derived from** the hierarchical database, as recited in Claim 1. Consequently, Claim 1 includes a limitation that is neither taught nor suggested in Call.

[0013] Derivation of the metadata schema from the hierarchical database serves two purposes. First, the derived metadata schema defines the form and structure of XML documents that may be passed to the hierarchical database *without any changes to the form or structure of the hierarchical database*. This is a significant advantage for hierarchical databases such as IMS in which large amounts of time and money have been expended to support certain critical business operations. By not changing the IMS databases, these other dependent systems remain unaffected.

[0014] The second purpose served by derivation of the metadata schema is that a first representation can be generated from the hierarchical database. As explained in the specification, a first representation represents the hierarchical structure of the hierarchical database. Charlet ¶ 58. The first representation may comprise a list-sub-list structure

within a set of Java classes that represent at least part of the metadata schema. Charlet ¶ 59.

[0015] While Call does teach using stored data to compress and decompress XML documents, this function is fundamentally different from what is recited in the present invention. In Call, as new XML elements are encountered, new entries are added to the stored data in order to allow an XML document to be stored more compactly. The stored data is being altered and added to constantly. The hierarchical database taught in the present invention is not altered by the XML documents – rather, one purpose of the invention is to allow for translation of the XML document to a hierarchical database without making changes to the database itself.

[0016] Since Call teaches storing data concerning the XML document in a database, as opposed to the recited limitation of decomposing an XML document and storing it in corresponding data fields in a hierarchical database by using a metadata schema describing that database, Call fails to teach the limitation "metadata schema derived from the hierarchical database."

[0017] Call teaches how a sequence of integer representations can represent hierarchical data. In contrast, the second representation in Claim 1 is part of the metadata schema. Applicants find no teaching in Call of a second representation or that a second representation is part of a metadata schema.

[0018] As recited in Claim 1, the first representation and second representation together are part of the metadata schema. Charlet explains that in certain embodiments, the metadata schema includes a document schema and a database schema. Charlet ¶ 54. Call fails to teach or disclose anything that constitutes a part of the metadata schema. Therefore, these limitations are not taught in Call and the amended Claim 1 is in condition for prompt allowance.

[0019] Applicants note that amended Claim 1 further teaches receiving an intact XML document and storing it intact. This comprises "receiving the XML document and a database node identifier", "initializing a first database node of the hierarchical database identified by the database node identifier", "sequentially writing raw data from the beginning of the XML document into the first database node" and "selectively identifying

a break point in the XML document in response to the first database node filling with raw data". Applicants assert that Call fails to teach this limitation of amended Claim 1.

[0020] Applicants first note that Call does not teach receiving and storing a raw XML document into a hierarchical database. The essence of Call is the compression of XML information, the compression performed largely through a parsing and converting scheme. Call, ¶¶ 67, 73. At the heart of Call is the need to "represent character data, particularly natural language text and markup, in a more efficient compressed format which requires less storage space and needs less transmission bandwidth, and which can be more rapidly processed than character data." Call, ¶ 15. Thus, storing XML data into database nodes is outside the scope of what Call seeks to address.

[0021] Applicants further note that the data that Call teaches storing consists of integers. *See, e.g.*, Call ¶ 18 ("...character data which represents natural language text is converted to a more efficient compressed form by first parsing the text data into logical subdivisions (e.g., markup metadata and the words and intervening punctuation in natural language text) which encapsulate the meaning of the original characters, and replacing each of these subdivisions with a fixed length numerical integer value to form a sequence of fixed length integers representing the character data."); ¶ 21 ("The integer data can be efficiently saved in a mass storage device..."). The XML data stored in a database when a raw XML file is received and stored may or may not consist of integers – the invention taught in Call cannot be used to store raw XML data. As such, Call clearly fails to teach storing XML data into a hierarchical database and the actions required to perform this sort of storage.

[0022] For completeness, Applicants also note that writing raw data, as taught in amended Claim 1, means that no formatting or converting of the data in the XML document is performed. Rather, each of the bits of data in the XML document is transferred straight to the database node in unaltered form. Call fails to teach the storage of XML data into a hierarchical database in unaltered form.

RESPONSE TO CLAIM REJECTIONS UNDER 35 U.S.C. §103(a)

[0023] Claims 4 – 7 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Call further in view of Pic. Claim 12 stands rejected under 35 U.S.C. §103(a) as being unpatentable over the combination of Call, Pic, and Fogarasi. Claims 4 and 12 have been canceled.

[0024] Applicants assert that the Claims rejected under 35 U.S.C §103(a) are allowable because they depend from allowable base Claims 1, 13, and 18. As discussed above, Call fails to teach or disclose several limitations of Claim 1. Neither Pic nor Fogarasi teaches the missing elements of Call.

[0025] Pic teaches dividing of a multimedia document into a plurality of meta-segments. Pic Abstract. These meta-segments are categorized and may be registered and search such that the meta-segments can be reviewed without reviewing the entire multimedia document. Pic Abstract. At Col. 18, ll. 1-8, Col. 3, ll. 19-62, Col. 7 line 60 to Col. 8 line 20, Pic teaches dividing of a multimedia document based on the type of medium, based on time indicators, or the like. Pic Col. 18, ll. 1-8. Pic teaches separating XML information from audio, video and other types of information.

[0026] Fogarasi teaches generation of an application that accesses a hierarchical database. Fogarasi Abstract. The system, method, and apparatus of Fogarasi generates object oriented software to permit modern technologies such as web browsers to interact with a hierarchical database such as IMS. Fogarasi Col. 5, ll. 21-32.

[0027] As such, neither Pic nor Fogarasi teach receiving an intact XML document and storing the intact XML document in a hierarchical database. Nor do Pic or Fogarasi teach a metadata schema derived from an XML document or from a hierarchical database. Because the rejected Dependent Claims depend upon allowable base claims 1, 13, and 18, and because neither Pic nor Fogarasi teach the missing elements, the Independent Claims 1, 13, and 18, along with their respective Dependent Claims, are in condition allowance.

CONCLUSION

[0028] Because the references fail to teach each of the limitations of amended Claim 1, the claim is in condition for allowance. Applicants submit that Claims 3 and 5-11 are also in condition for allowance as depending on an allowable Independent Claim. Applicants further submit that at least the same reasons for allowance apply to amended Claims 13, 15-17, 18, and 20.

[0029] In view of the foregoing, Applicants submit that the application is in condition for allowance. In the event any questions or issues remain that can be resolved with a phone call, Applicants respectfully request that the Examiner initiate a telephone conference with the undersigned.

Respectfully submitted,

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